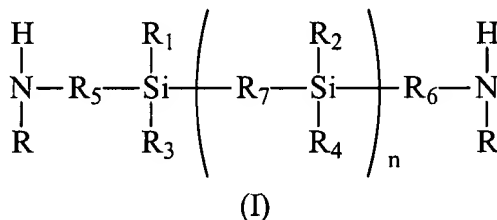


## CLEAN VERSION OF PENDING CLAIMS

63. (ONCE AMENDED) A polyurethane-urea elastomeric composition comprising a soft segment and a hard segment, wherein the soft segment is formed from at least one of a macrodiol, a macrodiamine, and a compound of formula (I):



wherein

R is hydrogen or an optionally substituted straight chain, branched or cyclic, saturated or unsaturated hydrocarbon radical;

R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, R<sub>4</sub>, R<sub>5</sub> and R<sub>6</sub> are each independently hydrogen or an optionally substituted straight chain, branched or cyclic, saturated or unsaturated hydrocarbon radical;

R<sub>7</sub> is a divalent linking group or an optionally substituted straight chain, branched or cyclic, saturated or unsaturated hydrocarbon radical; and

n is an integer of 1 or greater;

wherein the macrodiol is a polysiloxane macrodiol, a polyether macrodiol, a polycarbonate macrodiol, or a mixture thereof;

and wherein the hard segment is formed from:

(i) a diisocyanate; and

(ii) a chain extender comprising the compound of formula (I) and optionally a second chain extender.

64. The composition of claim 63 wherein n is 1 to 4; the molecular weight of the compound of formula (I) is about 500 or less; and the compound of formula (I) functions as a chain extender.

65. The composition of claim 64 wherein  $R_7$  is oxy.
66. The composition of claim 64 wherein the compound of formula (I) has a molecular weight range of about 60 to about 500.
67. The composition of claim 66 wherein the compound of formula (I) has a molecular weight range of about 60 to about 450.
68. The composition of claim 64 wherein the compound of formula (I) is 1,3-bis(3-aminopropyl)tetramethyldisiloxane; or 1,3-bis(4-aminobutyl)tetramethyldisiloxane.
69. The composition of claim 64 wherein the chain extender comprises the compound of formula (I) and the second chain extender.
70. The composition of claim 69 wherein the second claim extender is a diol, a diamine, a water chain extender, or a combination thereof.
71. The composition of claim 70 wherein the diol chain extender is 1,4-butanediol; 1,6-hexanediol; 1,8-octanediol; 1,9-nonanediol; 1,10-decanediol; 1,12-dodecanediol; 1,4-cyclohexanedimethanol; p-xyleneglycol; 1,4 bis (2-hydroxyethoxy) benzene; water; or a combination thereof.
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- sub  
B2 7  
72. (ONCE AMENDED) The composition of claim 70 wherein the diamine chain extender is 1,2-ethylenediamine; 1,3-propanediamine; 1,3-butanediamine; 1,6-hexanediamine; 1,2-diaminocyclohexane; 1,3-diaminocyclohexane; or a combination thereof.
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73. The composition of claim 69 wherein the compound of formula (I) functions as a chain extender and the molar percentage of the compound of formula (I) is about 1 to about 50% of the composition.

74. The composition of claim 69 wherein the compound of formula (I) functions as a chain extender and the molar percentage of the compound of formula (I) is about 35% to about 45% of the composition.

75. The composition of claim 63 wherein the diisocyanate is aliphatic or aromatic.

76. The composition of claim 75 wherein the diisocyanate is 4,4'-diphenylmethane diisocyanate (MDI); methylene bis (cyclohexyl) diisocyanate (H<sub>12</sub>MDI); p-phenylene diisocyanate (p-PDI); trans-cyclohexane-1,4-diisocyanate (CHDI); 1,6-diisocyanatohexane (DICH); 1,5-diisocyanato naphthalene (NDI); para-tetramethylxylene diisocyanate (p-TMXDI); meta-tetramethylxylene diisocyanate (m-TMXDI); 2,4-toluene diisocyanate (2,4-TDI); isophorone diisocyanate (IPDI); an isomer thereof; or a mixture thereof.

77. The composition of claim 63 wherein the hard segment is present in about 15 wt.% to about 50 wt.% of the composition.

78. The composition of claim 77 wherein the hard segment is present in about 21.8% to about 50 wt.% of the composition.

79. The composition of claim 77 wherein the hard segment is present in about 21.8% to about 40 wt.% of the composition.

80. The composition of claim 63 wherein the soft segment is formed from a polysiloxane macrodiol, a polyether macrodiol, a polyether macrodiamine, or a mixture thereof.

81. (ONCE AMENDED) The composition of claim 63 wherein n is about 5 to about 100; the number average molecular weight of the compound of formula (I) is about 500 to about 10,000; and the soft segment is formed from the compound of formula (I).

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C6  
B3

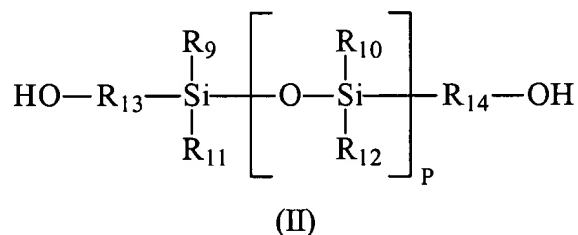
Sub 6  
B3  
82. (ONCE AMENDED) The composition of claim 81 wherein the compound of formula (I) is an amine-terminated polydimethylsiloxane (PDMS).

83. (ONCE AMENDED) The composition of claim 82 wherein the amine-terminated polydimethylsiloxane (PDMS) is bis(3-aminopropyl)-polydimethyl siloxane.

84. The composition of claim 81 wherein the soft segment is formed from the compound of formula (I) and at least one of a macrodiol and a macrodiamine.

85. The composition of claim 84 wherein the macrodiol is a polysiloxane macrodiol, a polyether macrodiol, a polyester macrodiol, a polycarbonate macrodiol, or a mixture thereof.

Sub 7  
B4  
86. (ONCE AMENDED) The composition of claim 85 wherein the polysiloxane macrodiol is a compound of formula (II):



wherein

$\text{R}_9$ ,  $\text{R}_{10}$ ,  $\text{R}_{11}$ ,  $\text{R}_{12}$ ,  $\text{R}_{13}$  and  $\text{R}_{14}$  are each independently an optionally substituted straight chain, branched or cyclic, saturated or unsaturated hydrocarbon radical; and

$p$  is an integer of 1 to 100.

B4  
87. (ONCE AMENDED) The composition of claim 86 wherein the compound of formula (II) is polydimethylsiloxane (PDMS).

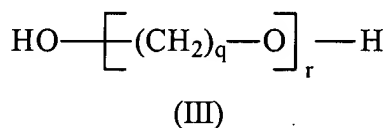
88. The composition of claim 87 wherein  $\text{R}_{13}$  and  $\text{R}_{14}$  are each independently propylene, butylene, pentylene, hexylene, ethoxypropyl, propoxypropyl, or butoxypropyl.

Sub C8  
89. (ONCE AMENDED) The composition of claim 86 wherein the number average molecular weight of the compound of formula (II) is about 200 to about 6,000.

BS  
90. (ONCE AMENDED) The composition of claim 86 wherein the number average molecular weight of the compound of formula (II) is about 500 to about 2,000.

91. (ONCE AMENDED) The composition of claim 84 wherein the soft segment is formed from an amine-terminated polydimethylsiloxane (PDMS) and polydimethylsiloxane (PDMS).

92. The composition of claim 85 wherein the polyether macrodiol is a compound of formula (III).



wherein

q is an integer of 4 or more; and

r is an integer of 2 to 50.

B6 Sub C9  
93. (ONCE AMENDED) The composition of claim 92 wherein q is 5 or higher.

94. The composition of claim 93 wherein the compound of formula (III) is poly(hexamethylene oxide) (PHMO); poly(heptamethylene oxide); poly(octamethylene oxide) (POMO); or poly(decamethylene oxide) (PDMO).

95. The composition of claim 92 wherein the soft segment is formed from the compound formula (I), which functions as the macrodiamine; and the compound of formula (III), which functions as a macrodiol.

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96. (ONCE AMENDED) The composition of claim 92 wherein the number average molecular

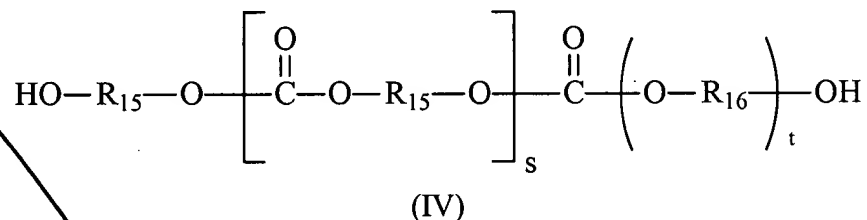
weight of the compound of formula (III) is about 200 to about 5,000.

B7 97. (ONCE AMENDED) The composition of claim 96 wherein the number average molecular weight of the compound of formula (III) is about 500 to about 1,200.

98. The composition of claim 85 wherein the polycarbonate macrodiol is a poly(alkylene carbonate); a polycarbonate prepared by reacting an alkylene carbonate with an alkanediol; a silicon based polycarbonate prepared by reacting an alkylene carbonate with 1,3-bis(4-hydroxybutyl)-1,1,3,3-tetramethyldisiloxane (BHTD); an alkanediol; or a mixture thereof.

99. The composition of claim 85 wherein both the polyether macrodiol and the polycarbonate macrodiol are present as a mixture or a copolymer.

B8 sub C11 100. (ONCE AMENDED) The composition of claim 99 wherein the copolymer is a copoly(ether carbonate) macrodiol represented by the compound of formula (IV):



wherein

$\text{R}_{15}$  and  $\text{R}_{16}$  are each independently an optionally substituted straight chain, branched or cyclic, saturated or unsaturated hydrocarbon radical; and  $s$  and  $t$  are integers of 1 to 20.

101. The composition of claim 84 wherein the macrodiamine is a polyether macrodiamine.

B9 sub C12 102. (ONCE AMENDED) The composition of claim 101 wherein the polyether macrodiamine is an amine terminated polytetramethyleneoxide.

a diamine chain extender; 1,3-bis(3-aminopropyl)tetramethyldisiloxane; 1,3-bis(4-aminobutyl)tetramethyldisiloxane; 1,4-butanediol; 1,2-ethylenediamine; ethanolamine; hexamethylenediamine; 1,4-butanediamine; water; 1,4-bis(4-hydroxybutyl)tetramethyldisiloxane; and combinations thereof.

105. The composition of claim 104 wherein the weight ratio of polysiloxane macrodiol to polyether macrodiol in the composition is about 1:99 to about 99:1.

106. The composition of claim 104 wherein the weight ratio of polysiloxane to polyether is about 75:25 to about 85:15.

~~B1 Sub C13 107. (ONCE AMENDED) The composition of claim 104 wherein the weight percentage of the macrodiol in the composition is about 60 wt.% to about 40 wt.%.~~

108. The composition of claim 104 wherein the diisocyanate is MDI..

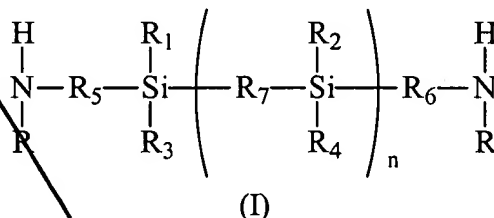
~~B12 Sub C14 111. (ONCE AMENDED) A polyurethane-urea elastomeric composition comprising a soft segment and a hard segment, wherein the soft segment is formed from:~~

~~(i) a macrodiol or a macrodiamine selected from the group consisting of a polysiloxane macrodiol, a polyether macrodiol, a polyester macrodiol, a polycarbonate macrodiol, a polyether macrodiamine, and mixtures thereof;~~

~~and wherein the hard segment is formed from:~~

~~(ii) a diisocyanate; and~~

~~(iii) a chain extender comprising a compound of formula (I):~~



wherein

R is hydrogen or an optionally substituted straight chain, branched or cyclic, saturated or unsaturated hydrocarbon radical;

R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, R<sub>4</sub>, R<sub>5</sub> and R<sub>6</sub> are each independently hydrogen or an optionally substituted



straight chain, branched or cyclic, saturated or unsaturated hydrocarbon radical;

R<sub>7</sub> is a divalent linking group or an optionally substituted straight chain, branched or cyclic, saturated or unsaturated hydrocarbon radical; and

n is an integer of 1 to [about] 4; and

the compound of formula (I) has a molecular weight of about 500 or less.

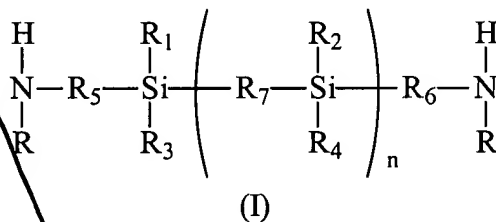
112. (ONCE AMENDED) A polyurethane-urea elastomeric composition comprising a soft segment and a hard segment, wherein the soft segment is formed from:

(i) a macrodiol comprising a polysiloxane macrodiol and a polycarbonate macrodiol;

and the hard segment is formed from:

(ii) a diisocyanate; and

(iii) chain extender selected from the group consisting of a compound of formula (I):



wherein

R is hydrogen or an optionally substituted straight chain, branched or cyclic, saturated or unsaturated hydrocarbon radical;

R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, R<sub>4</sub>, R<sub>5</sub> and R<sub>6</sub> are each independently hydrogen or an optionally substituted straight chain, branched or cyclic, saturated or unsaturated hydrocarbon radical;

R<sub>7</sub> is a divalent linking group or an optionally substituted straight chain, branched or cyclic, saturated or unsaturated hydrocarbon radical; and

n is an integer of 1 to 4; and

the compound of formula (I) has a molecular weight of about 500 or less;

a diamine chain extender; 1,3-bis(3-aminopropyl)tetramethyldisiloxane; 1,3-bis(4-aminobutyl)tetramethyldisiloxane; 1,4-butanediol; 1,2-ethylenediamine; ethanolamine;

hexamethylenediamine; 1,4-butanediamine; water 1,4-bis(4-hydroxybutyl)tetramethyldisiloxane; and combinations thereof;

wherein the level of hard segment in the composition is about 21.8 wt.% to about 60 wt.%.  
B12

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C15  
117. (ONCE AMENDED) A biomaterial that is manufactured from a composition of claim 63.

B13  
118. (ONCE AMENDED) A medical device, article or implant composed wholly or partly of the composition of claim 63.

119. (ONCE AMENDED) The medical device, article or implant of claim 118 which is a cardiac pacemaker, defibrillator, electromedical device, catheters, cannula, implantable prostheses, cardiac assist device, heart valve, vein valve, vascular graft, extra-corporeal device, artificial organ, pacemaker lead, defibrillator lead, blood pump, balloon pump, A-V shunt, biosensor, membranes for cell encapsulation, drug delivery device, wound dressing, artificial joint, orthopaedic implant, or soft tissue replacement.

120. A device or article composed wholly or partly of the composition of claim 63.

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C16  
B14  
121. (ONCE AMENDED) The device or article of claim 120 which is artificial leather, a shoe sole, cable sheathing, varnish, coating, structural components for a pump, structural components for a vehicle, mining ore screen, conveyor belt, laminating compound, textile, separation membrane, sealants or a component of an adhesive.

B15  
122. (NEW) The medical device, article or implant of claim 118 that is resistant to cyclic flex fatigue.

123. (NEW) The medical device, article or implant of claim 118 that is resistant to degradation.

AMENDMENT AND RESPONSE UNDER 37 CFR § 1.111

Serial Number: 09/933,938

Filing Date: August 21, 2001

Title: SILOXANE-CONTAINING POLYURETHANE-UREA COMPOSITIONS

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Page 28

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124. (NEW) The medical device, article or implant of claim 118 that is resistant to degradation

*in vivo.*

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